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tribution, will find here much valuable data; and the amateur bird student and the school-teacher with nature classes in the region treated, will have a good, reliable text-book to fall back upon. It is to be hoped that the work can be brought to the attention of the two last mentioned groups in particular.

It is fortunate, and also a recommendation for the work published by Mr. Tyler, that such competent experts as J. Grinnell and H. S. Swarth were prevailed upon to edit the paper.—FRANK S. DAGGETT.

THE SEQUENCE OF PLUMAGES OF THE ROOK, With Special Reference to the Molt of the "Face." By H. F. WITHERBY. (British Birds, London, vol. VII, no. 5, Oct. 1, 1913, pp. 126-139, pls. 4-11).

In a great deal of the work that has been done on the molts of birds, little attention has been paid to the molt of the less conspicuous feathers and feather-structures of birds, and it is a pleasure to find that this phase of the subject is coming into the prominence which it undoubtedly deserves. It is to be hoped that Mr. Witherby's investigation of the molts of the "face" of the Rook (*Corvus frugilegus frugilegus*) is the herald of much more study along this line, and that the interesting results of his research may stimulate others to do this sort of work, realizing that the less conspicuous structures are not necessarily less interesting or less significant. Throughout all the literature on the subject of molts, scarcely a reference can be found to the shedding of filoplumes, or of the down feathers of adult birds which possess them, nor has the reviewer hitherto been able to find any thorough account of the molts of the rictal and other facial bristles, ear-coverts, eye-lashes, oil-gland "tuft," or other modified feathers of the head and trunk. In a few cases the life and development of specialized feathers have been studied, as for instance the "racket" feathers of the motmots; but where is there any thorough light on the development, molt, and seasonal changes of the "brush" of a turkey, the powder down of herons, or the eye-lashes of any birds?

Mr. Witherby devotes the first half of his article on the Rook to a study of the molt and history of the feathers of those parts of the "face" which ultimately become bare, namely, the upper throat, chin, forehead, base of mandibles, and lores. The results which he obtained, well illustrated by the first seven plates accompanying the article, are very interesting in showing what the trend of evolution has been in bringing about the bare face of the European Rook (*Corvus f. frugilegus*), and in demonstrating how such bare spots may have arisen in other birds which have them. The comparison with the East-

ern Rook (*Corvus f. pastinator*) is particularly interesting. In the second part of his article, the method and general character of all the molts of the species is carefully described, so far as contour and flight feathers are concerned; but here, again, as in other literature on the subject, no reference is made to the molt and acquisition of filoplumes, relative to the contour feather with which they are associated, nor is there any statement concerning the loss and replacement of eye-lashes; moreover, it is not made clear what is the subsequent history of the nasal bristles. Nevertheless, Mr. Witherby's article is undeniably a step in the right direction, and it is hoped that it will be followed by further work along similar lines.—ASA C. CHANDLER.

A STUDY OF A COLLECTION OF GEESE OF THE *Branta canadensis* GROUP FROM THE SAN JOAQUIN VALLEY, CALIFORNIA, By HARRY S. SWARTH (Univ. Calif. Publ. Zool., vol 12, no. 1, pp. 1-24, 2 pls., 8 text figs.).

In a paper of 24 pages Mr. Swarth sets forth his conclusions as to the status in California and probable relationships of the four forms of the *Branta canadensis* group, as derived from the study of one hundred and fifty-three skins. The author finds that great confusion has arisen in connection with our effort to understand these geese, because of the highly variable character of certain marks, notably the white cervical collar and the black throat line, marks which have previously been relied upon for diagnostic distinction. This variability is convincingly illustrated by two tinted plates, which exhibit twenty heads of *B. c. minima*, of which no two are alike in pattern, or even in correlation of the discredited characters. Mr. Swarth finds that measurements, especially of bills and tarsi, when taken in connection with the general color tone of under plumage, whether light or dark, afford the only reliable basis of distinction. He concludes from these data that the only breeding form in California is *Branta canadensis canadensis*; that *Branta c. occidentalis* has no status as a species of California, but that it is a nearly resident form occupying the humid northwest coast region, where it probably intergrades with *canadensis* upon the east and *hutchinsi* on the north; and he predicts that a closer study of conditions in the Northwest will show that *hutchinsi* and *minima* do not, as has been frequently asserted, overlap in their breeding ranges, but that a regular gradation of size from *hutchinsi* to *minima* will be found to exist as the region is traversed—though whether from east to west or south to north does not yet appear. This

paper presents a masterly analysis of a confusing situation, and its conclusions must take first rank as authority because of their fairness, their comprehensiveness, and their critical acumen.—W. L. DAWSON.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, November 20, with President Law in the chair. The following members were present: Mrs. E. H. Husher and Mrs. F. T. Bicknell, and Messrs. Cookman, Daggett, Esterly, Fischer, Grey, Grinnell, Howell, Huey, Law, Miller, Morcom, Rich, Robertson, Tyler, Van Rossem, Welch, Willett, Wood, and Wyman. Visitors present were: Mrs. Robert Fargo and Messrs. R. L. Beardsley, F. T. Bicknell, C. L. Edwards, and Fordyce Grinnell, Jr.

In the absence of the secretary, Mr. L. E. Wyman was appointed to perform his duties. The minutes of the October meeting were read and approved. New members elected were: Allen J. Stover, Corvallis, Oregon; Amelia Sanborn Allen, Berkeley; E. F. Pope, Colmesneil, Texas. New names presented were: F. R. Decker, Prosser, Washington, and G. H. Lings, Nyack, New York, both proposed by W. Lee Chambers; Edwin S. Parker, Berkeley, proposed by J. Grinnell; and P. C. Dutton, Stone Staffs, England, proposed by H. W. Carriger.

A matter up for discussion was the nature of the relations between the Cooper Club and Mr. W. Leon Dawson, in the matter of the Club's co-operating with him in the production of his "Birds of California". Mr. Dawson had requested that some member or members be appointed to work together with him, chiefly on the technical portions of the book, to pass upon the accuracy, adequacy, and practical value of the plumage descriptions, ranges, etc., as given in his manuscript, and to make any suggestions that might prove helpful. The Northern Division had already acted in the matter, proposing that the presidents and secretaries of the two divisions form such a cooperative committee, and that they appoint some one individual, either of their own number or another member of the Club, who should do practically all of the supervisory work. It was further resolved that while this individual do all the active work, the committee be empowered to decide disputed points and that as far as the Club is concerned, the action of the committee be final and conclusive.

Mr. Grinnell spoke at some length on the English Sparrow problem, discussing methods used in attempting to exterminate the pest or hold it in check, and reviewing the status of the bird throughout the country. Adjourned.—L. E. WYMAN, *Secretary pro tem*.

### NORTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Cooper Ornithological Club was held in the research room of the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, November 20, 1913. President Carriger presided with the following members present: Mrs. Allen, Miss Atsatt, Messrs. Bade, Bryant, Camp, Lastreto, Parker, Shelton, Storer, and W. P. Taylor. Miss Rhoads was present as a visitor.

The minutes of the October meeting were read and approved, followed by the reading of the Southern Division minutes for October.

The following were elected to membership: Miss Louise LeBriss, Miss Olive Swezy, Chas. H. Culp, W. C. Bradbury, J. W. Eggleston, C. B. Lastreto, and H. A. Edwards. The following were proposed for membership: Miss Helen Powell, 2703 Dwight Way, Berkeley, proposed by W. F. Bade; L. R. Reynolds, 833 Market Street, San Francisco, proposed by J. Grinnell; Allan J. Stover, Corvallis, Oregon, proposed by Geo. F. Sykes; and E. F. Pope, Colmesneil, Texas, proposed by H. W. Carriger.

The resignation of Charles W. Bowles was read and laid over until next meeting.

A communication from the Pacific Coast Association of Scientific Societies was read asking whether the Cooper Club would take part in the meeting of the Association to be held in Seattle in 1914. It was the consensus of opinion among those present that no general meeting of the Club could be held at that time. The annual assessment for membership in the Association was ordered paid, subject to the action of the Southern Division.

The paper of the evening by Dr. Harold C. Bryant, entitled "Life-histories of Some Ducks in California," was then read. The paper comprised chapters on the Wood Duck, Baldpate, Harlequin, and Canvasback, from a general work now being prepared by Messrs. Grinnell and Bryant on the game birds of the state. Among the topics discussed were: migration, distinguishing characteristics, nesting, broods, feeding-grounds, food, flocking, numbers past and present, and protection needed. Adjourned.—TRACY I. STORER, *Secretary*.